

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.-35. (Canceled)

36. (Currently amended) A computer implemented method comprising:

executing storing, by an operating system that includes a shell and a kernel, the kernel of the operating system including a file system that is encapsulated by and a database management program, wherein the file system stores integrated with a database management program, data for one or more user space applications and, wherein the operating system uses the database management program generates objects for the data to generate objects for the data and the file system to store the file streams for the objects, wherein the database management program including includes a base schema that characterizes each object into one or more object types that allows the operating system to understand and interpret the information in the file system, wherein the base schema defines object, property base, and extension types, wherein an object type is defined by properties of a foundational object type, the property base type being an anchor from which other property types are derived and through which derived property types are interrelated, and the extension type defines which object an extension extends and identification to distinguish one extension from another;

wherein the database management program encapsulates the file system by handling file system access requests from the one or more user mode applications, wherein the one or more applications are configured to interface with one or more functions of an operating system application program interface that send read/write requests to the database management program of the operating system;

receiving, by the application program interface of the operating system, at least one request from said one or more user space applications for specific data; [[and]]

identifying, by the database management program integrated with the file system, a specific file that stores the specific data in the file system specific object corresponding to the specific data;

desearlizing retrieving, by the database management program operating system, the specific file into data indicative of a specific object corresponding to the specific data for said one or more applications; and

exposing, by the operating system, the specific object to the one or more user space applications.

37. (Previously presented) The method of claim 36, wherein the schema further defines at least one base object type including at least one base object type property.

38. (Currently amended) The method of claim 37 further comprising: storing, by the operating system, at least one object in said database management program that encapsulates integrated with the file system, said object being derived from said object type and including said at least one base object type property.

39. (Currently amended) The method of claim 38 further comprising: storing, by the operating system, said at least one object in said database management program that encapsulates integrated with the file system, wherein said at least one object extends from said base object type.

40. (Currently amended) The method of claim 37, wherein said base object type comprises a property that uniquely identifies said object to said database management program that encapsulates integrated with the file system.

41. (Currently amended) The method of claim 36, wherein said schema defines at least one base property that defines all other properties utilized by the database management program that encapsulates integrated with the file system.

42. (Currently amended) The method of claim 36, wherein said schema defines at least one base relationship type that defines all other relationships utilized by the database management program that encapsulates integrated with the file system.

43. (Currently amended) The method of claim 42, further comprising: storing, by the operating system, said at least one additional object in said database management program that encapsulates integrated with the file system, wherein said object includes a containment relationship defined by said schema that controls the life-time of another object that is the target of the relationship.

44. (Currently amended) The method of claim 43 further comprising: storing, by the operating system, said at least one additional object in said database management program that encapsulates ~~integrated with~~ the file system, wherein said at least one additional object is derived from said base object type and said at least one additional object includes a relationship to an object folder derived from said base object type, wherein said object folder being the source of the relationship and said object is the target of said relationship.

45. (Previously presented) The method of claim 44, wherein the existence of a containment relationship is indicated by a property field in the source object of the relationship.

46. (Previously presented) The method of claim 44, further comprising: deleting the object that constitutes the source in a containment relationship and in response to deleting the source, deleting any objects that are the targets of the containment relationship.

47. (Previously presented) The method of claim 43, further comprising: configuring said target of the containment relationship to be the target of multiple containment relationships.

48. (Previously presented) The method of claim 41, wherein the base schema further defines a second property type that constitutes a base type for categories.

49. (Currently amended) A computer readable storage medium including computer readable instructions, the computer readable storage medium comprising: instructions for ~~storing executing, by~~ an operating system that comprises a shell and a kernel, the kernel of the operating system including a database management program that encapsulates ~~and~~ a file system, ~~and wherein the file system stores~~ ~~is integrated with the database management program~~, data for one or more user space applications ~~and~~, ~~wherein the operating system uses the database management program generates to generate~~ objects for the data ~~and the file system to store the file streams for the objects~~, the database management program including ~~includes~~ a base schema that characterizes each object into one or more

object types that allows the operating system to understand and interpret the information in the file system, wherein the base schema defines object, property base, and extension types, wherein an object type is defined by properties of a foundational object type, the property base type being an anchor from which other property types are derived and through which derived property types are interrelated, and the extension type defines which object an extension extends and identification to distinguish one extension from another;

wherein the database management program encapsulates the file system by handling file system access requests from the one or more user mode applications, wherein the one or more applications are configured to interface with one or more functions of an operating system application program interface that send read/write requests to the database management program of the operating system;

instructions for receiving, by the application program interface of the operating system, at least one request from said one or more user space applications for specific data;

instructions for identifying, by the database management program integrated with the file system, a specific file that stores the specific data in the file system object corresponding to the specific data; [[and]]

instructions for deserializing retrieving, by the database management program operating system, the specific file into data indicative of a specific object corresponding with the specific data for said one or more applications; and

instructions for exposing, by the operating system, the specific object to the one or more user space applications.

50. (Previously presented) The computer readable storage medium of claim 49, wherein the base schema further defines at least one base item object including at least one base object type property.

51. (Currently amended) The computer readable storage medium of claim 50, further comprising:

instructions for storing, by the operating system, at least one additional object in said database management program that encapsulates integrated with the file system, said object being derived from said base object type.

52. (Currently amended) The computer readable storage medium of claim 51, further comprising:

instructions for storing said at least one additional object in said database management program that encapsulates integrated with the file system, wherein said at least one additional object extends from said base object type.

53. (Currently amended) The computer readable storage medium of claim 50, wherein said base object type comprises a property that uniquely identifies said object to said database management program that encapsulates integrated with the file system.

54. (Currently amended) The computer readable storage medium of claim 49, wherein said schema defines at least one base property that defines all other properties utilized by the database management program that encapsulates integrated with the file system.

55. (Currently amended) The computer readable storage medium of claim 49, wherein said schema defines at least one base relationship type that defines all other relationships utilized by the database management program that encapsulates integrated with the file system.

56. (Currently amended) The computer readable storage medium of claim 55 further comprising:

instructions for storing, by the operating system, said at least one additional object in said database management program that encapsulates integrated with the file system, wherein said object includes a containment relationship defined by said schema that controls the lifetime of another object that is the target of the relationship.

57. (Currently amended) The computer readable storage medium of claim 56 further comprising:

instructions for storing, by the operating system, said at least one additional object in said database management program that encapsulates ~~integrated with~~ the file system, wherein said at least one additional object is derived from said base object type and said at least one additional object includes a relationship to an object folder derived from said base object type, wherein said object folder is the source of the relationship and said object being the target of said relationship.

58. (Previously presented) The computer readable storage medium of claim 57, wherein the existence of a containment relationship is indicated by a property field in the source of the relationship.

59. (Previously presented) The computer readable storage medium of claim 57, further comprising:

instructions for deleting the object that constitutes the source in a containment and in response to deleting the source, instructions for deleting any objects that are the targets of the containment relationship.

60. (Previously presented) The computer readable storage medium of claim 56, further comprising:

instructions for configuring said target of the containment relationship to be the target of multiple containment relationships.

61. (Currently amended) A system for storing data in a data storage management system comprising:

hardware including a hard drive, wherein the hard drive includes executable code for an operating system, the operating system comprising a shell and a kernel, the kernel of the operating system including a database management program that encapsulates ~~and~~ a file system, wherein ~~and~~ the file system stores ~~is integrated with~~ the database management program, the operating system configured to store data for one or more user space applications and that are configured to execute in user space of the operating system, wherein

the operating system is configured to use the database management program generates to generate objects for the data ~~and use the file system to store the file streams for the objects~~, the database management program including a base schema that characterizes each object into one or more object types that allows the operating system to understand and interpret the information in the file system, wherein the base schema defines object, property base, and extension types, wherein an object type is defined by properties of a foundational object type, the property base type being an anchor from which other property types are derived and through which derived property types are interrelated, and the extension type defines which object an extension extends and identification to distinguish one extension from another;

wherein the database management program encapsulates the file system by handling file system access requests from the one or more user mode applications, wherein the one or more applications are configured to interface with one or more functions of an operating system application program interface that send read/write requests to the database management program of the operating system;

the application program interface of the operating system further configured to receive system calls from the one or more user space applications for specific data;

the operating system further configured to direct the database management program integrated with the file system to identify a specific file that stores the specific data in the file system specific object corresponding to the specific data; [[and]]

the database management program operating system further configured to desearlize retrieve the specific file into data indicative of a specific object corresponding to the specific data for said one or more user space applications; and

the operating system further configured to expose the specific object to the one or more user space applications.

62. (Previously presented) The system of claim 61, wherein the base schema further defines at least one base object type including at least one base object type property.

63.

64. (Currently amended) The system of claim 62, further comprising:
the operating system further configured to store at least one additional object in said database management program that encapsulates integrated with the file system, said object being derived from said base object type.

65. (Currently amended) The system of claim 63, further comprising:
the operating system further configured to store said at least one additional object in said database management program that encapsulates integrated with the file system, wherein said at least one additional object extends from said base object type.

66. (Currently amended) The system of claim 62, wherein said base object type comprises a property that uniquely identifies said object to said database management program that encapsulates integrated with the file system.

67. (Currently amended) The system of claim 61, wherein said schema defines at least one base property that defines all other properties utilized by the database management program that encapsulates integrated with the file system.

68. (Currently amended) The system of claim 61, wherein said schema defines at least one base relationship type that defines all other relationships utilized by the database management program that encapsulates integrated with the file system.

69. (Currently amended) The system of claim 67, further comprising:
the operating system further configured to store said at least one additional object in said database management program that encapsulates integrated with the file system, wherein said object includes a containment relationship defined by said schema that controls the lifetime of another object that is the target of the relationship.

70. (Currently amended) The system of claim 68, further comprising:
the operating system further configured to store said at least one additional object in
said database management program that encapsulates integrated with the file system, wherein
said at least one additional object is derived from said base object type and said at least one
additional object includes a relationship to an object folder derived from said base object
type, wherein said object folder being the source of the relationship and said object is the
target of said relationship.

71. (Previously presented) The system of claim 69, wherein the existence of a
containment relationship is indicated by a property field in the source of the relationship.